

What is claimed is:

1. A method of cache management in a data storage system comprising:
providing a table comprising tags corresponding to cache slots in a cache memory;
storing a copy of the table in a local buffer in response to a request for allocation of
5 one of the cache slots;
using the locally buffered table to make the requested cache slot allocation; and
using a set of control parameters associated with the locally buffered table to
determine if the locally buffered table can be used for cache slot allocation in response to a
subsequent request.

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2. The method of claim 1 further comprising:
providing user-selectable levels to control the degree of locally buffered table re-use,
the user-selectable levels determining which values of the control parameters are used.

- 15 3. The method of claim 2 further comprising:
receiving a selection of one of the user-selectable levels by a user.

4. The method of claim 3 further comprising:
using the selected level to determine if one of the cache slots corresponding to tags in
20 the locally buffered table can be used to store new data.

5. The method of claim 4 wherein using comprises:

comparing statistics associated with the tags in the locally buffered table to the control parameters.

5 6. The method of claim 5 wherein the control parameters include an indication of when the locally buffered table was last written.

7. The method of claim 5 wherein the tags in the table each include a flag which, if set, indicates if a corresponding one of the slots is available for use.

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8. The method of claim 7 wherein the control parameters include a number of the tags in which the flag is set.

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9. The method of claim 5 wherein the tags in the locally buffered table each include a timestamp indicating the time that the most recent hit occurred.

10. The method of claim 1 wherein the user-selectable levels include a range of locally buffered table re-use levels from most restrictive to least restrictive.

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11. An apparatus, comprising
a stored computer program in memory instituting the steps of
providing a table comprising tags corresponding to cache slots in a cache memory;

storing a copy of the table in a local buffer in response to a request for allocation of one of the cache slots;

using the locally buffered table to make the requested cache slot allocation; and

using a set of control parameters associated with the locally buffered table to
5 determine if the locally buffered table for cache slot allocation in response to a subsequent request.

12. A data storage system comprising:

a plurality of physical resources;

10 a global memory comprising a cache memory, which includes cache slots to store data associated with tracks on the physical resources, and at least one table having tags corresponding to the cache slots;

a processor for managing writes to and reads from the plurality of physical resources using a locally buffered copy of the at least one table; and

15 wherein the processor is operable to associate control parameters with the locally buffered copy of the at least one table and is responsive to user-selectable levels to control a degree of re-use, the user-selectable levels determining which values of control parameters are used.